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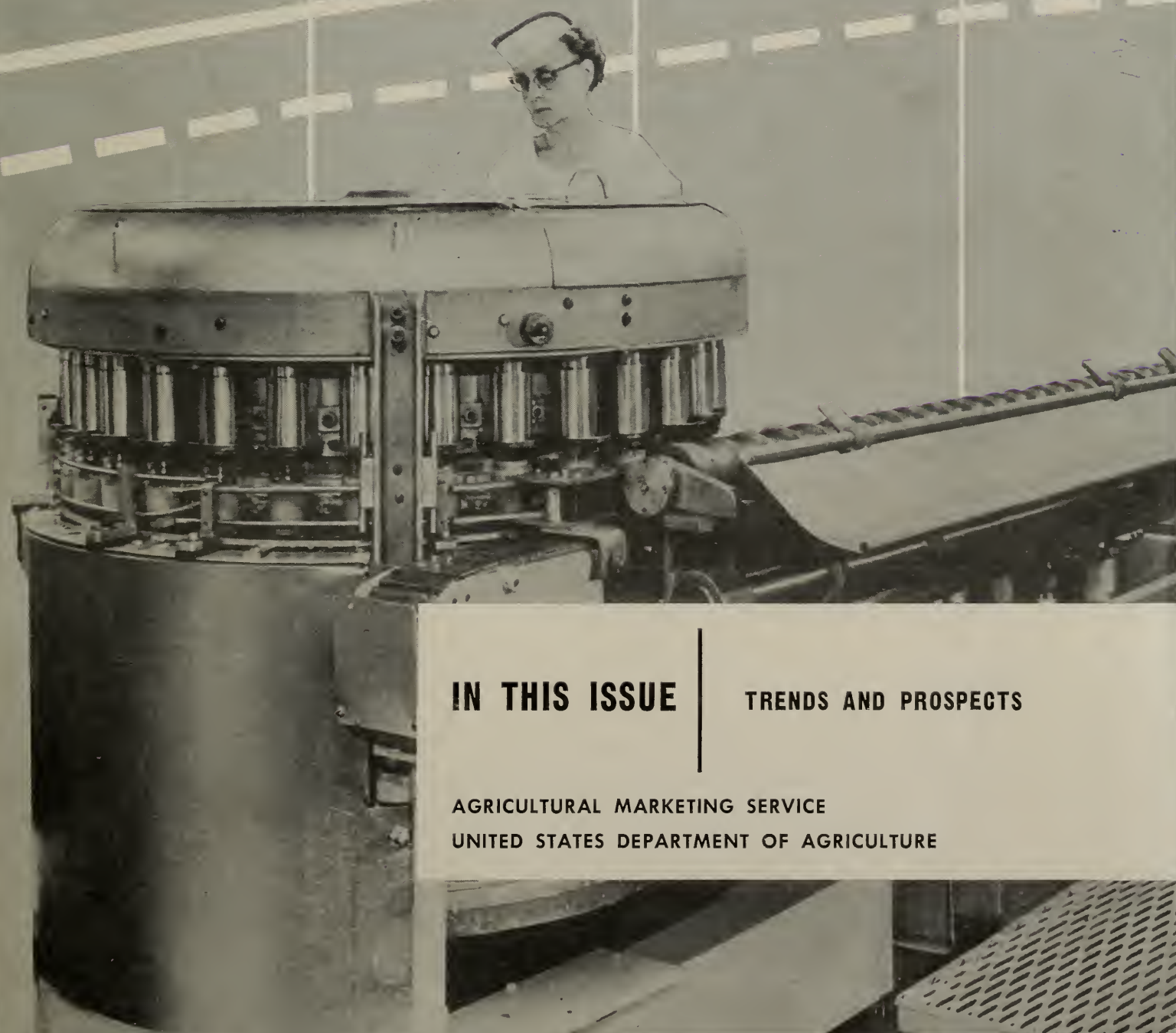
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IN THIS ISSUE

TRENDS AND PROSPECTS

AGRICULTURAL MARKETING SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

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Editor, Milton Hoffman

Assistant editor, Jeanne Starr Park

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TRENDS AND PROSPECTS

THE DEMAND FOR FARM PRODUCTS



by REX F. DALY

1958 should be another good year for the marketing of food and other farm products.

Economists of the Agricultural Marketing Service predict a fairly strong and stable domestic demand for agricultural commodities and a high level of exports.

On the home scene, demand for farm products will depend primarily on population growth and changes in income. It will also be influenced by the amount of industrial activity and construction, the rural-to-urban shift in population, and other changes in the way we live—customs, food fads, nutritional findings, and the like.

Exports of farm products—both food and fiber—will be affected by the size of foreign agricultural production, foreign economic activity, supplies of dollar exchange,

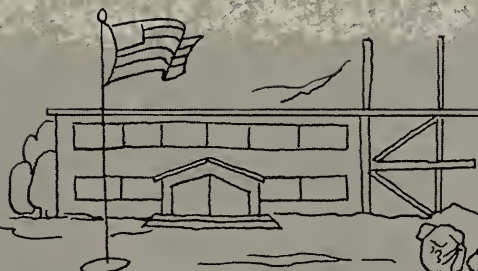
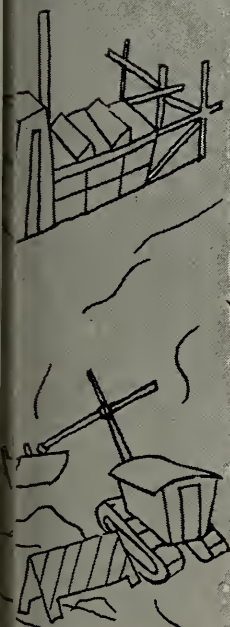
and the extent of our Government export programs.

Within the country, population growth will have the most direct and major influence on the demand for farm products. In 1958 alone we shall have approximately 3 million more people to feed and clothe. By 1965 we can expect a population of around 193 million and possibly as much as 230 million in 1975. (The population of the United States was estimated at 172.7 million on January 1, 1958.)

While consumer incomes are not expected to change much during 1958, some further rise is anticipated in expenditures for food and many other nondurable goods and services. In recent years consumers as a whole have spent about a fourth of their income for food; a 10-percent increase in income has resulted in about a tenth larger outlay for food.

Continued on page 4

Rex F. Daly is Head of the Income and Demand Section, Agricultural Economics Division, AMS.



DEMAND FOR FARM PRODUCTS

continued

In 1957, consumer expenditures for food were up from a year earlier by about the same proportion as consumer income—around 5 percent. On a per capita basis, the gain was about 3 percent and was due to higher food prices.

These higher prices are expected to continue at least during the first half of this year. Much of the rise in food expenditures will again be absorbed by added services and further increases in the cost of marketing and processing food. The so-called convenience foods are a big item here. Their rapid acceptance is a reflection of both the general rise in incomes and the increase in the number of working wives.

The importance of their added income, their contacts with people outside their own circle of friends and relatives, and their need for quicker, more easily prepared foods are all factors that have an influence on food consumption and expenditure patterns.

Still another factor affecting consumption trends is the continued movement of farm people to non-farm homes. Farm families generally produce much of the meat, poultry, canned fruits and vegetables and other processed foods they consume. When they shift to the urban and city areas, their consumption changes too.

General Economy

In the overall picture, general economic conditions tend to bear out the prediction of little change in the demand for agricultural products. Prospective trends in economic activity indicate that employment and consumer purchasing power will be well maintained throughout 1958.

Although business investment in new plant and equipment has leveled off and is expected to decline in 1958, outlays by State and local governments for new schools, roads, and other public facilities will continue to increase.

Spending by the Federal Government had been expected to decline some, but recent announcements of a step-up in defense programs may make the decline small and of short duration.

At the same time, the decline in residential construction appears to have come to an end, and some improvement is in prospect for 1958. This should stimulate household appliance sales.

Our domestic demand in general should continue strong next year with some further increases in spending for services, food, and many other nondurable goods.

Export Trade

How our export trade will shape up will depend pretty much on the foreign supply situation for our major export crops as well as Government export programs. At present, it looks as though exports in 1958 will fall short of the \$4,700,000,000 worth of farm products exported in 1956-57—possibly by 15 percent.

Cotton exports, for example, probably will not match the 7.6 million bales exported last year. A better European wheat crop may reduce requirements for U.S. wheat exports. However, with substantial Government funds available for export programs, it appears likely that total exports, though down from 1956-57, will still exceed those of 1955-56.

Over the longer pull, agriculture continues to face the difficult problem of balancing production to market demand at prices considered adequate to producers. This problem will likely persist for several years.

Domestic requirements for food and other farm products are expected to increase around 20 percent in the next decade and possibly as much as 50 percent in the next 2 decades. With rising incomes, these gains will be a little more rapid than the anticipated growth in population. Exports should hold up well, though they will continue to depend heavily on special export programs and price policies for farm products.

Look to Future

Record farm output in recent years is probably exceeding normal market outlets by around 8 percent. The domestic market has expanded and exports have been maintained at record levels by special Government export programs. Thus, we were able to reduce burdensome stocks of cotton, wheat, and rice during the 1956-57 marketing year.

But stocks of these crops, as well as feed grains, are still large and the feed grain carryover will increase again this year.

Unless production can be curtailed, it looks as if supplies of cotton, food grains, and feed grains will continue to be burdensome. And big supplies of feed grains may be expected sooner or later to result in further expansion in output of livestock products.

Population growth in prospect and an expanding economy now point to an increase of around 50 percent in the domestic market for farm products by 1975. Both crops and livestock products would share in this gain.

The preference for beef probably will expand more rapidly than for pork, especially if we continue to produce a fat hog. Consumption of poultry is expected to rise but less rapidly than in the past quarter century. Some continued rise in milk consumption is in prospect with the demand for milk fat less promising than for other milk solids.

Experience of the last decade gives no basis for expecting a rise in egg consumption.

Combined consumption of food crops per person has varied little during the past 25 years. However, the average person today consumes much less of such foods as cereals and potatoes. Declines in these foods have been largely offset by increased consumption of some fruits and vegetables. With rising incomes these trends are likely to continue though declines for cereals and potatoes may be less rapid.





NEW PRODUCTS NEW PACKAGING SPARK DEMAND FOR FARM PRODUCTS

by ROBERT M. WALSH

PRODUCT INNOVATION—that rather general term which encompasses new packaging, new products, and new technological methods of food manufacturing—is one of agriculture's most vital weapons in competing for its share of the consumer's dollar.

It adds a spark to agricultural marketing, producing new demands for farm products and further gains in our living standards.

For the individual firm, a new

Robert M. Walsh is Chief of the Market Development Branch of Agricultural Marketing Service.

product or new packaging method means a definite competitive advantage. For the consumer, it means an ever-increasing array of food choices with new conveniences, new flavors, improved qualities, and even lower prices. For the agricultural producer, a greater variety, number, and stability of outlets are offered for his products. And for the economy as a whole, product innovations are a key element in continued growth and better living.

One of the most-talked-of innovations in food retailing is the prepack-

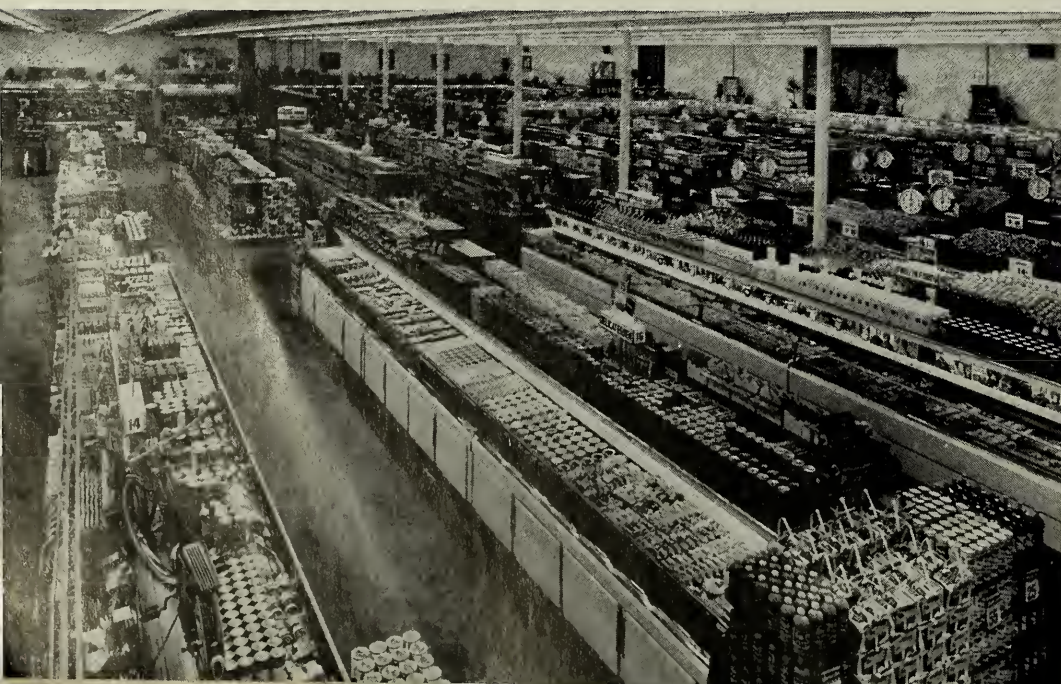
aging of fresh fruits and vegetables. Since 1950, when only 5 percent of the fresh produce was prepackaged, this practice has grown significantly. In 1956, it totaled 20 percent of all fresh produce on the market, by 1960 probably will include more than half.

Recent AMS experiments in retail stores show that prepackaging helps reduce spoilage as well as present the product in a neat, attractive form. It also permits self-service, and in many cases cuts labor costs by eliminating one or more clerks now bagging and weighing produce.

But changes in package forms are not confined to fresh produce. Meats, too, are being packaged, weighed, and priced in the backroom for quicker customer service and greater operating efficiency.

New outer wrappings are being found on boxed merchandise. Colorful new labels of bright foils and clear films vie for the customer's attention, and the number of brands and package sizes provide a wide range of selection. Many supermarkets today carry as many as 6,000 different items on their shelves.

Another form of product innovation involves a food product being modified to produce greater conven-



ience in use, greater economies, greater storability, and improved quality. This form also plays a major role in increasing consumer demand.

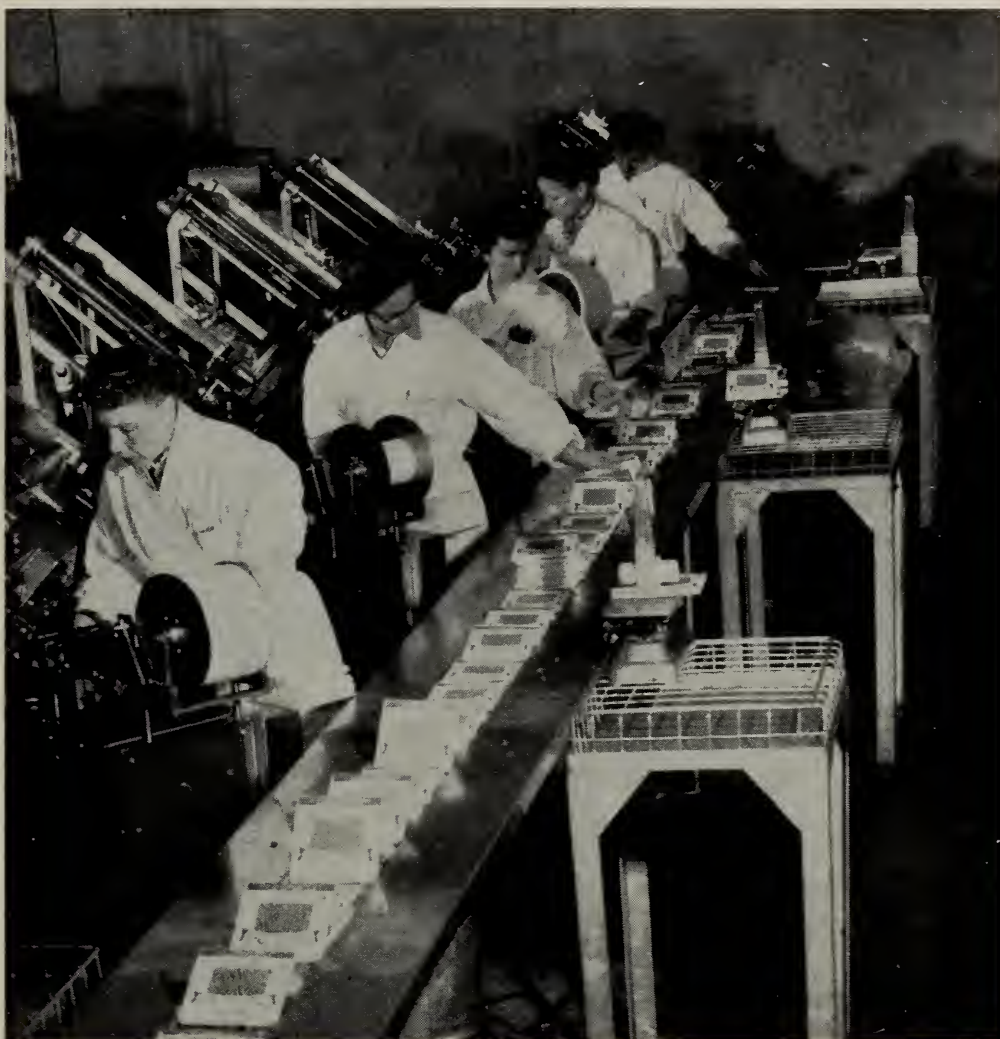
Among these new products, frozen foods, prepared cake mixes, and eviscerated poultry are perhaps the best known. There are many others.

In the dairy industry, nonfat dry milk has been vastly improved. Unknown to most American homemakers as recently as 10 years ago, its sales totaled nearly 150,000,000 pounds in 1956. And this increase has not been at the expense of other dairy products with the possible exception of evaporated milk (and here only to a minor extent).

The product improvement that skyrocketed sales of nonfat dry milk came in 1953 when the product was made "instantly" soluble even in cold water. Further work now is being done on milk concentrates, both dry and liquid. Within the past 2 months, USDA utilization research specialists have uncovered a storable modified sweetened cream which may have further repercussions on the domestic and foreign market.

Vast changes have occurred in the poultry industry with the development of a broad market for broilers and fryers. Total poultry meat consumption increased from 17 pounds per person in 1940 to 29 pounds in 1956. Broiler consumption rose from 2 to 16 pounds over the same period, more than accounting for the total increase in poultry meat.

The development of the meat-type hog is another effort of producers and marketing men to satisfy consumer preference and also reduce hog-production costs. The demand for pork has decreased noticeably in the past 10 years. One of the contributing factors apparently has been the excessive fattiness of pork, which most consumers consider a waste of money. So, USDA and several of the State experiment stations are supporting the drive toward greater production of the meat-type hog and for payment for such hogs on a "merit basis." If successful, as seems



Prepackaging is one of the most-talked-of innovations in food retailing. It can be done either at the processing plant or at the retail store. Here, chip steaks come off assembly line.

likely, consumer satisfaction will be increased and hog producers will benefit from increased returns.

Also on the horizon are two other new developments being explored by the Western Utilization Research Laboratory. These are dehydrofrozen and dehydrocanned products. This process consists of reducing the weight of a product by approximately one-half by removing a major part of the water before freezing or canning. Although experimental work is still being done in this area, dehydrofrozen pimentos are now being used in the cheese industry and dehydrofrozen apples in commercial pie baking. In both cases, quality is well maintained and significant economies have been possible through reduced shipping and storage weights.

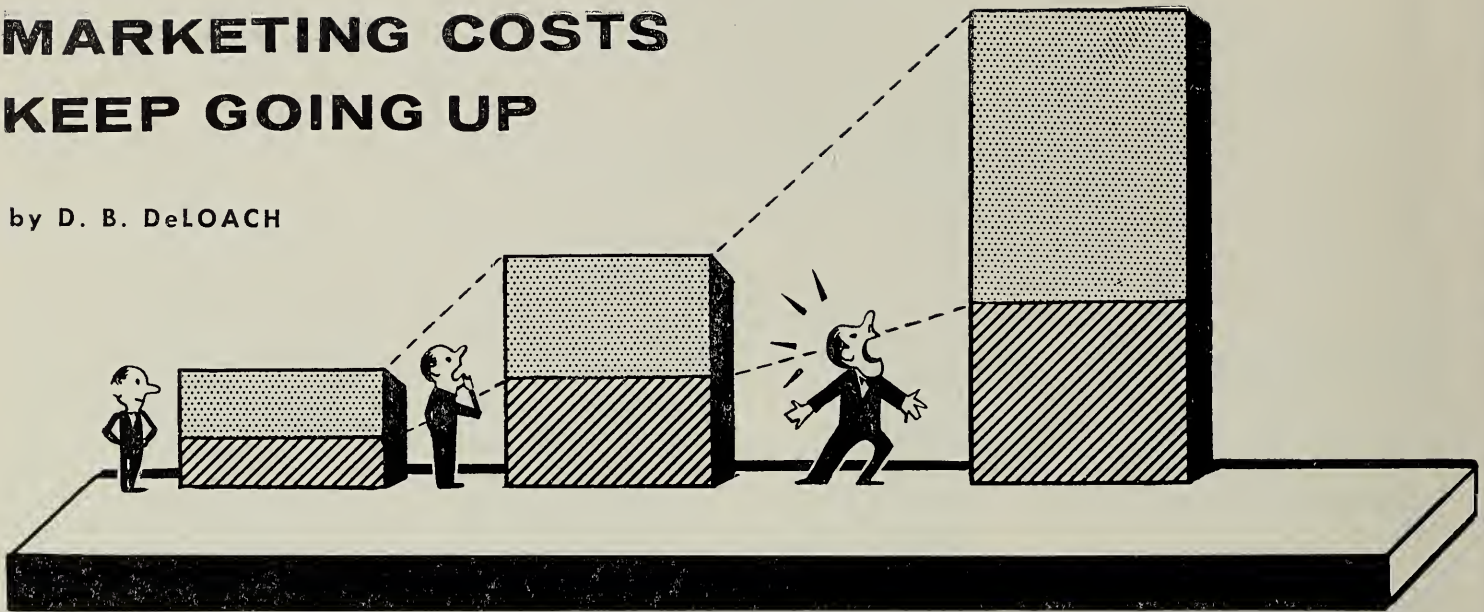
Another important aspect of product innovation is found in nonfood,

industrial uses of farm products. Increased research on new industrial outlets is a vital need of all who produce and market farm commodities. Synthetic fibers—the rayons, nylons, Orlon, and others—have become extremely competitive factors in marketing cotton and wool. Similarly, inedible fats and oils are being largely displaced in the detergent field by petroleum derivatives and in the paint, varnish and enamel field by synthetic resin latexes. As a result, more and more of our crops and animal byproducts are being forced into uncertain export channels.

While product innovation in food retailing has opened new avenues for agricultural products, in the industrial-use field it is fighting a rear-guard action. A major break-through is needed if significant new industrial uses are to be opened up.

MARKETING COSTS KEEP GOING UP

by D. B. DeLOACH



FOOD marketing costs have risen without interruption since 1938, and they are still going up. An increase of about 5 to 6 percent is expected for 1957, and a further and only slightly smaller increase for 1958.

Marketing costs amounted to about 60 percent of the retail cost of food in 1956 and the first 9 months of 1957. Both percentagewise and dollarwise, these costs are at their highest since 1940.

Why marketing costs have gone up is no great mystery. It's part of the price inflation that has engulfed our country since the beginning of World War II. In addition, it reflects about a 50-percent increase in the volume of products marketed to feed our expanding population, and a significant rise in the amount of services sold with food as well as greatly improved quality for many items.

For the most part, the forces causing the rise in costs lie outside the marketing system for farm products. They are general factors that are prevalent throughout our economy. They include higher wages, higher interest rates, higher transportation costs, more taxes.

They are forces in our economy which are beyond the control of any

one business organization. Yet they determine the conditions under which all must operate. Let's take a closer look at some of these factors which have caused a general price increase.

Labor costs, of course, are the first that come to mind. Hourly earnings of workers engaged in marketing food were more than 3 times as high in 1957 as in 1939. However, unit labor costs rose only 2.3 times. This shows a pronounced rise in worker productivity. Sales per worker in retail stores rose from \$23,000 in 1939 to \$38,000 in 1956 in terms of 1956 dollars.

As total labor costs went up, the number of persons employed in processing and distribution activities also rose. The additional services required for semi-prepared and prepared foods took more people to handle them. So, too, were more technical, clerical, professional, and sales personnel needed to help expand sales, develop new products, and handle managerial tasks. And more record keepers were required to take care of the paperwork involved in reporting under various Federal and State social security, minimum wage, taxation, and regulatory programs.

It is estimated that the full-time equivalent of 5.2 million workers was employed in food processing and distributing in 1956—about 37 percent

more than in 1939. Corresponding labor costs were estimated at 18.3 billion dollars in 1956 or about 289 percent more than in 1939.

Another factor that cannot be overlooked, and which also adds to the increased labor costs, comes from the unionization of the food processing and distributing industries. Labor unions brought with them an established work day and work week with provisions for overtime payments and fringe benefits. In addition, State and Federal legislation provided for increasing kinds and amounts of fringe benefits and further regulated the conditions of employment.

Along with these changes in labor relations and costs have come changes in retailing methods and practices. These make obsolescence a very real factor in the marketing picture. Customary depreciation allowances which consider only the use value and physical deterioration of plant and equipment are no longer adequate. A modern retail market must be properly located, have plenty of parking facilities, and be equipped to handle a large volume of frozen foods. It must also be well-lighted and clean.

To offer these up-to-date facilities and keep abreast of technological advances, marketing firms are spending several hundred million dollars

D. B. DeLoach is Chief of the Market Organization and Costs Branch of AMS.

annually. Processing firms are doing the same. They are expected to put out about \$828 million in 1957 for modernization and plant expansion. Most of this new investment is being financed out of funds set aside from depreciation allowances and retained profits.

Higher transportation costs also have contributed to rising marketing costs. Railroad freight rates are up about 80 percent and presumably truck rates have risen about the same.

Interest rates have gone up sharply, too. Prime commercial paper of 4 to 6 months sold to yield $4\frac{1}{4}$ percent in October 1957 compared to as low as $1\frac{1}{2}$ percent in 1954.

Business taxes paid by sellers are another item that figures largely in the cost of marketing farm products as well as all other commodities. Taxes have kept pace if not exceeded other cost items in the marketing bill. Property, business, excise, corporation, and personal income taxes were the main source of about \$105 billion collected by Federal, State, and local governments in 1956. Inheritance taxes are also becoming increasingly important in the elimination of small businesses.

If we assume that taxes collected by the various Government agencies are distributed among industries in approximate proportion to the dollar volume of sales, the share borne by food would amount to roughly 20 to

25 percent of the total cost of producing, processing, and marketing food. Up to one-fourth of a consumer's food bill is made up of taxes.

The problem of marketing men today is to find ways of keeping these increased costs within limits. Processors and distributors cannot have costs in excess of the prices they receive. If they are to stay in business, certain adjustments have to be made.

Some forces, however, are fixed. The development of industrywide labor contracts has more or less standardized wage rates and working hours by trade areas within the food industry. Facility and investment interest rates are standardized.

Since the marketing man has no control over these cost items, he must find the answer in other methods of management. His major function thus becomes one of getting the maximum output from the inputs of labor and capital.

To do this, he has introduced new technologies as a means of keeping down unit labor costs. He has modernized existing facilities for processing and distribution, and constructed and acquired new facilities and equipment to use his labor efficiently.

He has also developed high-volume processing and distributing units as a means of keeping unit costs to a minimum. This has been most effective in allocating the costs of sales promotion programs.

Expenditures for the various types of sales promotion have increased to the point where they must be recognized as an important cost item in the food trade. They have done much to encourage business concentrations, making it possible for these expenditures to be divided among many more items of production.

Mass buying of merchandise or raw materials for processing is another means of keeping per-unit costs down. A single firm often is unable to gain the advantage of lower prices from buying mass quantities at one time. So here again the multiunit, corporate-type firm figures largely in reducing marketing costs. Through economies in procurement and advantages derived from promotion and physical handling, the multiunit processing and distributing firm seeks to cut per-unit costs.

The post World War II expansion of multistore retailing, supermarkets, and retailer-processor integration is another remedial measure of management to get economies through volume buying and selling.

A further effort at economies of scale is management's introduction of nonfood items in retail food stores. This reversion to the "general" store has become an accepted practice among food and drug stores.

At the same time, among food processing firms, commodity specialization is decreasing rapidly and, in its place, a merger movement is developing. This is primarily to permit the distribution of sales and merchandising costs over a multi-product line instead of depending on a single product.

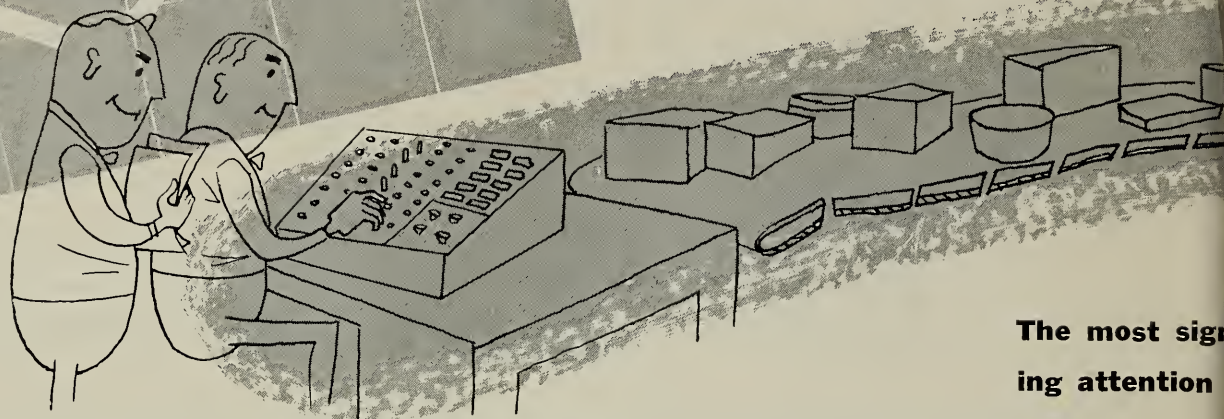
The food processing and distributing industry has been quick to adjust to the many changes in our marketing system. It has recognized the causes for and the importance of holding down costs; it has responded well to the challenge it faces. Undoubtedly, in the future, the marketing system will continue to supply outlets for foods and fibers at prices that will be directly in line with the income level of consumers.

OVER 5 MILLION PEOPLE WERE EMPLOYED IN FOOD PROCESSING, DISTRIBUTING IN 1956.



CHANGES AND TRENDS IN

FOOD MARKETING INDUSTRY



The most significant attention

Food Manufacturing Industries

Increased interest in product innovation, technological developments, and the need to reduce production and delivery costs have led to significant changes in the food manufacturing industries.

Since 1947, the number of plants manufacturing food products has decreased, while average output per plant has increased. New plants have sprung up in new areas of production, and the swing toward convenience foods has grown rapidly.

These are the trends most evident in the food manufacturing industries during the past decade. But what about the next 10 years and the years after that?

Obviously, an increased population with increased spending will mean an increase in the production of man-

ufactured food products. But there's more to the story than that.

Although economists of the Agricultural Marketing Service expect the total output of manufactured foods to grow at about the same rate as the population, they also see a more rapid growth among the more highly processed products.

Already the production of frozen foods has increased fivefold since 1947. In the 7 years between 1947 and 1954, the production of eviscerated chickens grew 12 times; eviscerated turkey production jumped almost 6 times.

These are just three of the "convenience" items that are taking a larger place in the growing list of manufactured food products. There are many others. In fact, as much as 28 percent of each food dollar is, today, being spent for these foods.

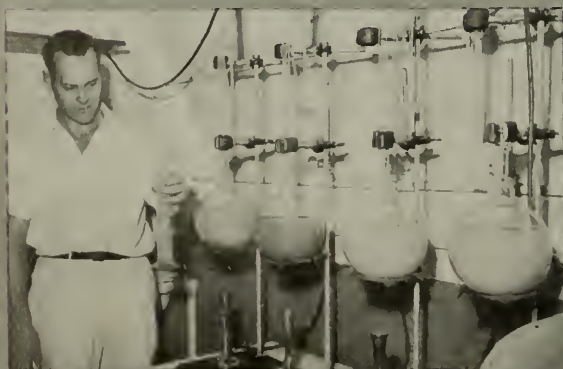
And this is only the beginning. Food manufacturing companies are

spending more and more on research and product development. In the future, there will not only be many new convenience products, but a improvement of old ones.

Yet, the increase in the total production of the food manufacturing industries will not be as large as output of new items. New food products often simply replace other, ready established, products. However, marketing specialists note that many of the new products probably will involve more processing per unit than those they displace. In this way the value of each unit may increase and so, too, the value of the production of the industry as a whole.

To keep pace with these technological developments and the growing population, large investment plant and equipment are being made. More plants are moving to production areas; modern equipment is replacing outmoded and inefficient

Forrest E. Scott is an agricultural economist in the Market Organization and Costs Branch, AMS.



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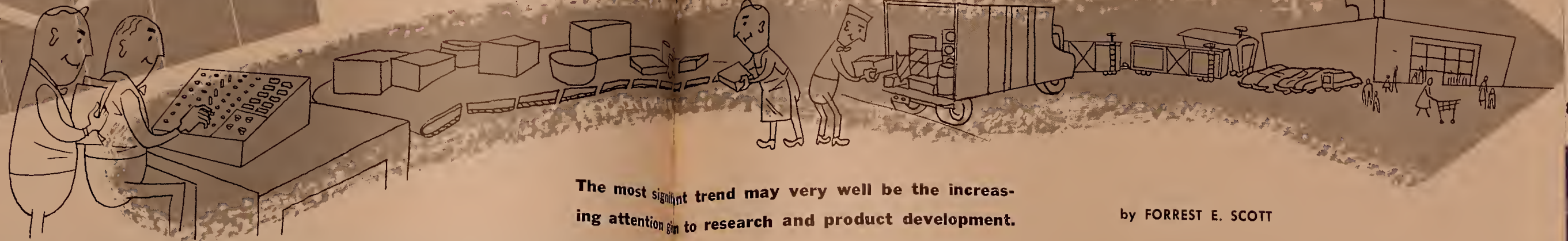


New solvent-extraction mills have outdated the hydraulic press and screw press mills.



Livestock distribution establishments

CHANGES AND TRENDS IN 'FOOD MARKETING INDUSTRIES



The most significant trend may very well be the increasing attention given to research and product development.

by FORREST E. SCOTT

Food Manufacturing Industries

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To keep pace with these technological developments and the growing population, large investments in plant and equipment are being made. More plants are moving to production areas; modern equipment is replacing outmoded and inefficient

structures; and plants are increasing in size, decreasing in number.

In the 30 industries whose primary products are foods manufactured from farm-produced raw materials, the total number of plants dropped from 31,829 to 30,607 between 1947 and 1954. Only 13 industries increased the number of their plants, and most often these were those producing "special" products—ready-to-cook poultry, special dairy products, margarine, prepared meats, flour mixes, and the like. Manufacturers of the more basic food products—sugar, flour, butter, etc.—saw their ranks decreasing, but per plant output increasing.

Usually it was the saw mill or plant that ceased production, and technological improvements were the major reason. Shortages of capital, overcapacity in the industry, and an inadequate or uncertain supply of raw materials were other causes.

In the sugar industry, it was technological improvements, obsolescence and overcapacity that accounted for the sharp decrease in the number of raw sugar mills. In the soybean and cottonseed oil extracting industry, new solvent-extraction mills outdated the hydraulic press and screw press mills and put many of them out of business.

All down the line, efforts to reduce costs by economies of scale and technological improvement have accounted mainly for the decrease in the number of plants. AMS economists feel this trend will continue, as it has since 1947, into 1958 and the years to come.

The Wholesale Trade

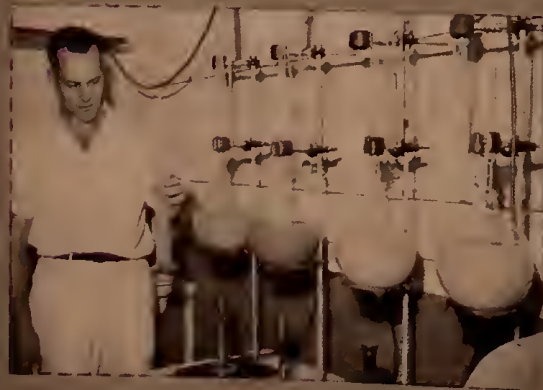
Economists in the Market Organization and Costs Branch of AMS don't go along with the idea that the wholesale food trade is disappearing as a result of direct buying by retail

stores. They point to dollar sales statistics which show substantial increases in most lines of food wholesaling. They indicate that more and more establishments are appearing and greater quantities of food products are being handled.

But they also comment that wholesalers may not have handled as large a share of the products bought by food retailers, restaurants, and other customers in the last few years. During this period, these outlets greatly increased the total amount of their purchases, but they may have bought a larger share directly from producers.

In the wholesale grocery trade, dollar sales of general-line merchant wholesalers did not increase as much as those of specialty-line wholesalers, brokers, and agents. Nor did the number of establishments of the general-line wholesalers increase. Actual-

Continued on page 12



Food manufacturers are spending more and more on research and product development.



New solvent-extraction mills have outdated the hydraulic press and screw press mills.



Livestock slaughterhouses have reduced the number of their establishments and their dollar sales.



Improvements in transportation enable an assembler to draw his products from a wide area.



The number of small groceries and specialty stores decreased by a fifth from 1948 to 1954.

FOOD MARKETING INDUSTRIES

Continued

ly, they had little more than three-fourths as many in 1954 as in 1948.

Despite this, general-line wholesalers were still the largest factor in the wholesale grocery trade. Their sales made up 31 percent of total sales in 1954. Specialty-line merchant wholesalers had 19 percent; agents and brokers, 29 percent; and manufacturers' branches and sales offices, 21 percent.

In the scenes behind the wholesaler, the trend toward fewer establishments but larger sales per unit continued among the assemblers of farm products. These are the firms that buy or receive products directly from the farmers.

Between 1948 and 1954, fewer establishments handled fruits and vegetables, dairy and poultry products, and livestock. Yet, for both fruits and vegetables and for dairy and poultry products, the dollar sales for these firms were larger in 1954 than in 1948. For livestock, however, dollar sales and prices both decreased by about the same proportion, indicating that assemblers handled about the same quantity of meat animals in both years.

In the grain trade, both the number of assembly establishments and dollar sales declined.

AMS economists feel that the rather general decrease in the number of establishments assembling farm products is part of a long delayed adjustment to improvements in transportation facilities. Larger assembly establishments become feasible and additional economies of scale are possible when an assembler is able to draw his products from a wide area.

This change in transportation facilities, together with efforts to reduce costs by economies of scale and technological improvements, account mainly for the decrease in the number of assembly establishments.

Interestingly enough, these factors did not have the same effect on terminal

markets. Although grain and livestock dealers saw their dollar sales rise considerably between 1948 and 1954, they also witnessed a growth in the number of establishments.

Livestock distributors tripled the number of their establishments while doubling their dollar sales. Grain dealers increased the number of their plants by about three-fifths with substantial gains in dollar sales.

The number of establishments operated by grain brokers and agents also increased, but the dollar value of handled grain decreased. For the livestock brokers and agents, about 25 percent more establishments came into operation, but dollar sales increased by only about 5 percent.

The Retail Trade

More and bigger supermarkets seem to be the trend in the retail food trade.

Already a leading factor in the merchandising of farm-produced foods, supermarkets are expected to gain an even larger share of the grocery-store trade in the years ahead. With their wide assortment of food and other merchandise, they have attracted customers away from meat markets, bakeries, fruit and vegetable markets, and other specialty food shops.

Between 1948 and 1954, the number of small groceries and specialty stores decreased by more than one-fifth. The number of supermarkets doubled, and their sales volume increased at an even greater rate.

This trend toward large stores has been most evident since World War II. Total sales of grocery stores having an annual volume of \$500,000 and over jumped 150 percent between 1948 and 1954. For stores in the \$100,000-\$499,999 class, sales, went up only 16 percent, while small stores with volumes of less than \$100,000 dropped 14 percent in total sales.

Both small and medium-size stores accounted for a smaller share of the total grocery-store sales in 1954 than in 1948. Small stores made about 22 percent of total sales in 1954 com-

pared with 37 percent in the earlier year. The share of medium-size stores dropped from 35 to 29 percent.

It was the large stores that racked up the largest share. Their sales amounted to 49 percent of the total grocery-store sales in 1954—a rise of 21 percentage points in the 6-year period.

Sharing largely in this sales increase are chain organizations which operate 11 or more stores. The 12 largest chain retail food-store companies in 1954 had a total sales volume of \$10.4 billion. Each of the companies sold more than \$100 million worth of merchandise.

These 12 chains accounted for 30 percent of all sales made in 1954 by retail grocery stores. The 3 largest, each with a sales volume of more than \$1 billion, made up 22 percent of the total.

But the smaller chains increased their sales faster than these large chains. Sales of other chains operating 11 or more stores rose by a little more than 70 percent compared with an increase of 56 percent for the 12 largest chains. Total sales of multiunit stores rose by more than three-fifths during this period while those of single-unit stores increased by only a fourth.

Mergers among retail food-store companies have been frequent. Some chains have grown more from acquiring existing stores than from establishing new ones. Often an area is already supplied with supermarkets and choice sites for new markets are scarce. In such a case, buying an existing store may be preferable to opening a new market.

In spite of the many mergers in recent years, the total number of multiunit stores has declined. The stores involved often belonged to a chain organization before the merger; also the chains have closed many small stores.

Such was the situation in the retail food industry in 1954. It is expected to continue for the next few years at least.

THE SHORTER WORKWEEK

IN

AGRICULTURAL MARKETING INDUSTRIES

by IMOGENE BRIGHT

WITH THE EXCEPTION of the Korean War period, there has been a steady decline in the workweek for agricultural processing and trade employees since 1947. This represents the continuation of a trend that began late in the 1800's and is typical of all industry in the United States.

The number of hours worked is an important cost factor. Along with the hourly wage rate, number of persons employed, and the productivity of workers—the length of the workweek affects the labor cost in the marketing of farm products.

In view of this, AMS economists, who are making a continuous study of all factors that make up farm-to-consumer marketing margins and costs, are interested in any change in the workweek, particularly as it may affect the adjustments which management can make to maintain or improve marketing efficiency.

On the whole, changes in the number of hours worked per week take place rather slowly. Although personal considerations may determine a particular individual's workweek, other factors set up the general framework within which all employees work. These include State and Federal legislation, collective bargaining agreements, and the nature of a given occupation or industry.

Although there are still instances in which employees in retail food stores are working 60 or more hours a week, increasingly the workweek in manufacturing, retailing, and whole-

saling has been reduced to 48, to 46, to 45, and more recently to 40 hours.

Based on data for the first 8 months in 1957, as compared to 1947, the average weekly hours have declined in the manufacture of bakery, sugar, canned and preserved products, grain mill, meat, dairy, confectionery and related products, as well as in the wholesale and retail trade.

During the first part of 1957, these were the average number of hours worked each week in some of the agricultural processing industries: bakery products, 40.4; sugar products, 40.6; canned and preserved products, 38.3; grain mill products, 43.2; meat products, 40.4; dairy products, 42.3; confectionery and related products, 39.7.

In retail food and liquor stores, the average weekly hours worked during this period was 37.0; in the wholesale trade, they were 40.7. Based on an 8-month average in the above industries, the decline in average number of hours worked per week since 1947 has been from 0.3 to 3.9 hours.

To some extent, hours of work are a reflection of cyclical changes. Frequently, employers, faced with declining business, reduce hours before laying off employees and, conversely, increase hours before hiring additional workers.

Competition by management for employees also has influenced the length of the workweek. Federal legislation and the spread of labor unions in the food processing and trade industries are additional factors of importance. Unions have bargained over the length of the work-

week and provisions for premium pay for time worked beyond that specified in agreements.

Unions are bargaining not just for increased pay, but for reduced hours as well. More leisure time is one objective. Another, though indirect, objective is increased pay. A shorter workweek without a decrease in pay means a greater per-hour wage.

In any event, marketing costs may be affected by any change in the hours worked per week. The wage bill may be reduced because the employer is paying for fewer hours. But, frequently, weekly wages are maintained although the workweek is shortened, resulting in the same pay for fewer hours worked. This has been the trend over the past ten years not only in agricultural marketing but in all industry.

When firms are operating under labor-management agreements providing for premium pay for work beyond a certain number of hours, a reduced workweek may merely be management's way of staying within the no-premium-payment limit. This becomes increasingly important as the amount of the overtime premium rises—for example, double time, double time plus a fixed dollar amount, or triple time.

Contracts in different industries and localities provide for premium pay after a different number of hours. In most instances, overtime begins after 40 hours in 1 week, the work week established under the Fair Labor Standards Act. But sometimes, as few as 35 or as many as 45 or 48 hours mark the beginning of premium payments.

To maintain the same or reduced per-unit costs with the shortened workweek and unchanged weekly wages, greater efficiencies in production must be achieved. The worker must increase his man-hour output, and management must put to full use the latest, most modern equipment and improved work methods. Otherwise, the shortened workweek can only result in increased marketing costs.

Imogene Bright is an agricultural economist in the Market Organization and Costs Branch, AMS.



FROM MINNESOTA TO TOKYO, MARKET DEVELOPMENT IS PUT ON A PERSON-TO-PERSON BASIS.

DEVELOPING OUR EXPORT MARKETS

U.S. agricultural and trade groups cooperate with USDA to develop overseas markets. Joint programs show potential customers how U.S. farm products can be adapted to foreign requirements.



Korean, Thailand officials visit USDA laboratory to inspect U. S. leaf tobacco for purpose of setting buying standards.



Japanese watch uniformed attendant insert cigarettes containing U. S. tobacco into high-speed packaging machine.



Open bins allow these Spanish agriculturists to see and handle U. S. wheat, corn, barley, oats, rye, sorghum grain.



West German housewife seems to like samples of U. S. fruits. Representative of Fruit Export Council watches approvingly.



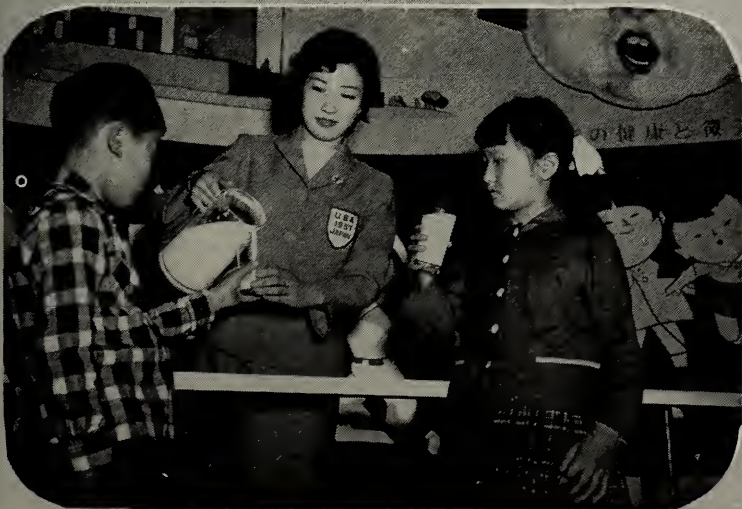
In London, Britishers get first look at frozen TV dinner in divided dish.



In Rome, monks were interested in variety of American packaged foods.



Italian meat trade leaders express interest in various U. S. meat cuts.



Japanese are given a chance to learn first-hand about re-constituted milk. Here, 2 youngsters give it the taste test.



U. S. Dairy Princess and Japan's Miss Cotton display latest cotton fashions, help promote sale of U. S. cotton abroad.

CONTAINERS FOR RETAILING FRESH FLUID MILK

Household purchase studies reveal some important trends to agricultural economists on the shift from single-quart to larger size containers.

by **RUSSELL L. HAWES**

It doesn't take a marketing researcher to tell us that in the last ten years fluid milk merchandising patterns have changed considerably. Everyone's aware of some of the changes that have occurred—every-other-day delivery, homogenization, addition of vitamins, and increased use of paper containers.

Yet recent data from household purchase studies have pinpointed for agricultural economists in the Market Development Branch of AMS another important trend in the retailing of fresh fluid milk.

Economists found—from a consumer panel of 6,000 representative

Russell L. Hawes is an agricultural economist in the Market Organization and Costs Branch of Agricultural Marketing Service.

House-to-house deliveries account for about half of total purchases of fluid whole milk.



families—that the consumption of whole milk is increasing at a faster rate in regions where milk purchases have shown the greatest shift from quart to half-gallon containers.

In both the South and Mountain-Southwest areas, this shift to the half-gallon container has been large and consumption of milk has increased—not only in total, but on a per capita basis.

The data revealed that during the third quarter of 1957 (July-September) per capita purchases of whole milk were up 10 percent in the South and 12 percent in the Mountain-Southwest region over the corresponding period in 1954. The proportion of total purchases by householders represented by whole milk in half gallons rose 28 percentage points in the South and 22 points in the Mountain-Southwest; the single-quart share of the purchase volume declined 21 and 22 percentage points, respectively.

Elsewhere in the country—in the North Central, Northeast, and Pacific regions—the shifts from quarts to half-gallons were not so great and the volume of purchases rose at a slower rate. However, it should be pointed out that per capita purchases in these three regions were still higher than in the South and Mountain-Southwest.

The shift from single-quart to half-gallon and gallon containers has, of course, been going on since World War II. In most instances, the introduction of the half gallon or gallon

containers came as a means of reducing costs of packaging and processing. It also sought to encourage increased purchases by passing on these savings to consumers.

To attract customers, milk in larger containers usually sold at a discount price, and an advertising campaign made consumers aware of the advantages of larger unit purchases.

These promotional methods worked well, and the shift began. Single quart purchases dropped markedly in the three years between 1954-55 and 1957-58. About 73 percent of the total quantity of fluid whole milk purchased by householders during the 1954-55 marketing year was in single-quart containers. Two years later, these purchases represented only 60 percent of total sales. Current figures show that 55 percent of total whole milk purchases during the first 6 months of the 1957-58 season was made in single quarts.

Greatest shifts away from the single-quart and toward the half-gallon container came in the Mountain-Southwest region, but the South and North Central regions showed an almost equal shift. Smallest changes occurred in the Northeast and Pacific regions in 1956-57, where single-quart purchases decreased only 8 and 13 percent, respectively, from the 1954-55 season. In the Northeast, this can be explained, in part, by market restrictions on the use of half-gallon and gallon containers in some of the larger metropolitan centers.

Regardless of the size of the con-



THE INTRODUCTION OF HALF-GALLON CONTAINERS USUALLY CAME AS A MEANS OF REDUCING COSTS OF PROCESSING, PACKAGING.

tainer, house-to-house deliveries provide the most important outlet for fluid whole milk. About half the total purchases by householders are made on a delivered basis. Another fourth is marketed by independent stores, and the remaining fourth by national, regional, local chains, and dairy stores.

In all of these retail outlets, milk purchases in half-gallon containers have been cutting into single-quart sales. Statistics for house-to-house deliveries are typical. Three years ago, the quart-size unit accounted for 83 percent. However, quart-size house-to-house deliveries in 1956-57 declined 7 percent (417,000,000 quarts) from 1954-55, while half-gallon deliveries went up 71 percent (634,000,000 quart equivalents). Data for the first half of 1957-58 reflect a continued increase in half-gallon containers. Single-quarts dropped another 5 per-

cent; purchases in half-gallon deliveries went up 35 percent.

But the trend toward larger-than-quart-size containers seems to be slowing down. When there is no price advantage, the larger containers do not show as great an acceptance. This may be seen in a comparison of house-to-house deliveries and independent grocery-store sales of milk in half gallons.

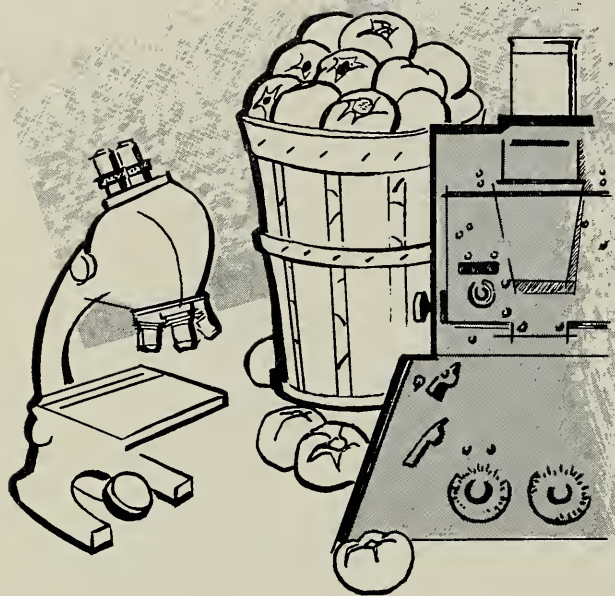
Despite the overall volume difference, independent stores are selling about the same amount of milk in half-gallon containers as house-to-house deliverers. No doubt, this is because the average price paid for home-delivered milk is higher for all container sizes.

The quart-equivalent prices paid by householders for delivered milk in half-gallon containers frequently approaches and sometimes exceeds the prices paid at other outlets for

milk in quart containers. At the same time, the per-quart-equivalent price for milk delivered in gallon containers is usually more than for half gallons in stores.

Along this same line, it should be noted that in all outlets, the price of milk in half-gallon containers seems to be going up faster than the price of milk in either quarts or gallons. If this trend continues, the price advantage of the two-quart container will be eliminated and only handling preference will determine the consumer's choice.

Latest AMS consumer purchase data show that the percentage change from quart to larger-than-quart containers was considerably smaller in all retail outlets in the first half of the current season (April-September 1957) and the same period a year ago than between the 1956-57 and 1954-55 dairy marketing years.



MAINTAINING QUALITY OF FRESH PRODUCE

by J. M. LUTZ

SIGNIFICANT advances are being made in the field of maintaining food quality. Agricultural Marketing Service scientists are doing a lot with radiation, antibiotics, and chemicals to increase shelf life and preserve quality.

These studies are being made at the Plant Industry Station, Beltsville, Md., and AMS field offices throughout the country, often in cooperation with State Experiment Stations, the Armed Forces, and industry groups.

Irradiation is one of the most interesting phases of this research (see *AGRICULTURAL MARKETING*, March 1957). It affords an opportunity to utilize the atom for constructive and beneficial purposes.

Scientists know that use of atomic radiation can materially aid in extending the market life of certain fresh fruits and vegetables. It has already proved a potent potato sprout inhibitor, and it can also aid in the control of certain post harvest diseases.

Early, but rather definite, tests show that almost without exception enough radiation to completely destroy the decay organisms also has had effects on the fruit or vegetable itself. For this reason, a minimum dosage that would retard the decay organism but still not hurt the product is used. By combining radiation with refrigeration the market life of many products is increased. Many practical problems still exist and commercial application of irradiation for this purpose does not appear probable in the near future. More research is necessary.

A pilot plant for further study of irradiating agricultural products is scheduled to go into operation in Stockton, Calif., in 1958.

In addition to radiation, antibiotics and chemicals can also be used to increase shelf life. Two antibiotics—chlortetracycline (Aureomycin) and oxytetracycline (Terramycin)—have been approved for commercial use by the Food and Drug Administration. Both of these are being used widely throughout the country to extend the shelf life of poultry.

Experiments are being conducted with these and other antibiotics on other products. Production researchers have been using a commercial product which is a combination of streptomycin and oxytetracycline to control or reduce fire blight of pears and apples, and to control certain other field diseases.

These antibiotics have been used in seed beds to reduce wild fire and blue mold of tobacco and bacterial spot of tomatoes and peppers.

Bacterial blight in Persian walnuts and seed piece decay in potatoes have been reduced in some instances by streptomycin.

Antibiotics have been tested as a postharvest dip for fresh fruits and vegetables. Bacterial decay of packaged spinach has been effectively reduced by using either streptomycin or Terramycin. Bacteria are not eliminated, but shelf life is extended 1 or 2 days.

Other experiments have shown that antibiotics are effective in extending the shelf life of cole slaw and salad mixes and for the control of decay of peaches.

J. M. Lutz is Assistant Head of the Quality Maintenance and Improvement Section, Biological Sciences Branch of AMS.

Marketing researchers are now studying methods of extending the shelf life of packaged prepeeled potatoes. Indications are that a combination of antibiotics almost completely inhibits the growth of bacteria, yeast, and fungi found in prepeeled potatoes.

The antibiotics that have been approved for use on poultry are those that are destroyed during cooking. It looks like antibiotics might best be used for fruits and vegetables that require cooking, like potatoes and snap beans. Their application on perishables would probably be as a supplement to refrigeration.

Two chemicals (biphenyl and Dovicide A) are being used fairly extensively to extend the market life

of citrus fruits. Another chemical, ammonia, is also receiving considerable attention to determine its commercial value in reducing the decay of oranges.

The Marketing Research Division of AMS has been cooperating in this work with the University of California.

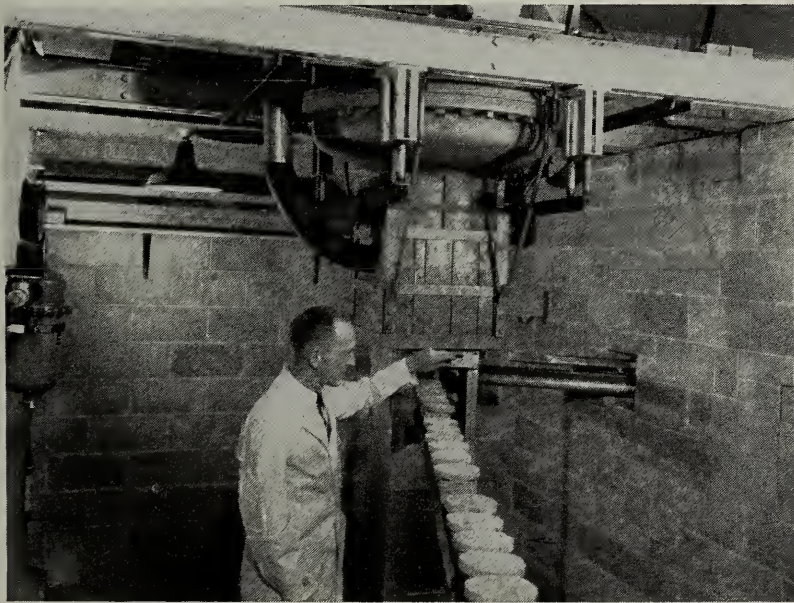
Along with radiation, antibiotics, and chemicals, researchers have considerable interest in new packaging materials and what they may contribute to maintaining quality.

Oranges packaged in conventional open mesh bags or displayed in bulk in retail stores without refrigeration lose a considerable amount of weight. This weight loss results in a marked

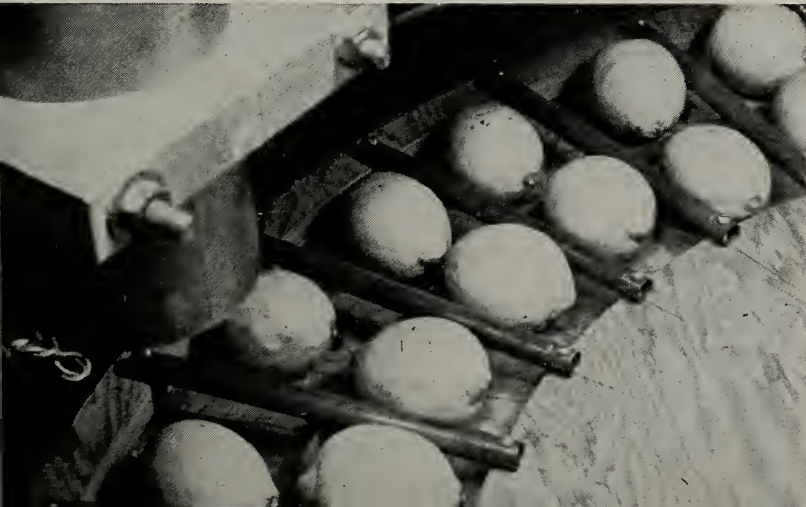
loss of firmness and in shrivelling of the fruit.

Polyethylene bags maintain high humidity around the fruit and thus reduce weight losses. But, decay is usually more severe because of the very high humidity. So, the bags have been perforated to provide adequate ventilation. Even with perforation, decay is about one-third more than in mesh bags. However, this can be counteracted by treating the fruit with chemicals. In one test, decay was about the same for treated fruit in polyethylene bags and untreated fruit in mesh bags. Moisture loss and shrivelling is adequately controlled even though the polyethylene bags are moderately perforated.

This resonant transformer is being employed on an experimental basis in meat packing plant to study the effects of irradiation on meat patties.



Linear accelerator uniformly irradiates lemons as they roll under beam.



Antibiotic solution is poured into chill tank before poultry goes in. Application may be as supplement to refrigeration.



OFFICIAL BUSINESS

NAMO Meeting in Lexington

F. W. Risher of Jacksonville, Fla., Assistant Commissioner, Florida State Marketing Bureau, has been elected president of the National Association of Marketing Officials for 1958. Mr. Risher was elected at the Association's 38th annual meeting at Lexington, Ky., in October.

Other officers include W.A. Wunsch, State College, N.M., first vice president; J.E. Youngblood, Columbia, S.C., second vice president; and incumbent D.E. Wilkinson, Madison, Wis., secretary-treasurer. George H. Chick of Augusta, Me., outgoing president, was named a member at large of the executive committee, as was incumbent J.M. Foote, Phoenix, Ariz.

President George H. Chick told the group that "more and more people in high places are more convinced than ever that the solution to our agricultural problems must be worked out in the field of utilization and marketing."

Noting the increased emphasis placed on marketing research and marketing services during the past few years, President Chick cited South Carolina's peach promotional work last summer and the ambitious promotional programs now being developed in New Jersey and New York.

Several AMS representatives participated in the year's program.

J.J. Gardner, Fruit and Vegetable Division, discussed the Perishable Agricultural Commodities Act. Speaking generally of the suppression of

misbranding and misrepresentation of produce, he commented approvingly on State activities in these areas.

J.C. Winter, Marketing Research Division, spoke about transportation problems. He told the group that before railroads can improve their service the full cooperation of railroad labor must be obtained.

"I am glad to note," he remarked, "that several committees of the railroads are studying the problem of faster movement of cars and particularly the reduction of terminal delays."

Mr. Winter also discussed the weight and length restrictions that hamper truck movement and the bookkeeping involved in the payment of the number and variety of taxes truck operators are assessed.

Floyd Hedlund, Fruit and Vegetable Division, talked about State and Federal marketing agreements and orders. Weighing the advantages and disadvantages of each, he told the delegates that USDA is happy to see States go ahead with their own agreements.

Dr. Harry C. Trelogan, Marketing Research Division Director, pointed out that in many instances State Departments of Marketing serve a liaison function between the marketing researcher who helps develop change and the businessman who must decide whether to adopt change.

"The decisions of businessmen are charged with public interest because

of the impact they have on marketing costs and, through them, on returns to farmers and prices to consumers," Dr. Trelogan said.

L.C. Foster, Marketing Research Division, reviewed State marketing programs. He said there are currently 120 projects being carried on in 39 States and 3 Territories, with about \$2,500,000 in State and Federal funds going into the program, and with industry groups paying a part of the cost in many States.

Hermon I. Miller, Poultry Division Director, spoke on poultry grading and inspection. He discussed the growth of grading and the grading programs, the growth of the shell egg certification program, and the quality control egg program in the Far West. He concluded his talk with a point-by-point review of the compulsory poultry inspection program.

Frank Blood, AMS Assistant Deputy Administrator, discussed market news operations. He told the delegates that financing is still the number one problem in this area.

Ivan Jett, Director, Kentucky Chain Stores Council, Inc., emphasized in his talk the importance of good agricultural public relations.

"The total investment of farming amounts to \$186 billion. That of all industry amounts to \$189 billion. Let's get out and tell people this. Let's get them out of the notion that agriculture is only a small segment of our economy," he advised.